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APPLICATION FOR

UNITED STATES LETTERS PATENT

FOR

METHOD AND SYSTEM FOR ESTABLISHING VOICE COMMUNICATIONS
USING A COMPUTER NETWORK

SPECIFICATION

TO WHOM IT MAY CONCERN:

Be it known that we, Anthony J. Dezonno and William R. Quayle, have invented a certain new and useful device of which the following is a specification:

Background of the Invention

5 The present invention relates generally to a method and
system for establishing voice communications between a computer
operator and a business and, more particularly, a method and system
for establishing voice communications between a computer operator
and an agent of a business via a computer network, such as the
Internet, wherein the operator transmits a call request over the
10 computer network to a telephone switching system associated with
the agent and, in response to the call request, the telephone
switching system calls the operator and connects the agent to the
operator when the operator answers the call.

15 Computer users are increasingly interacting with other
computer users via extensive computer networks. The computer users
are able to perform a multitude of tasks over computer networks,
such as buying concert tickets, checking stock prices, reviewing
news stories, and the like. One extensive, international computer
network is the Internet. The Internet was originally created to
20 electronically interconnect government and university computers
over telephone lines. The Internet has now grown, however, to
encompass over 20 million users worldwide including single user
computers.

25 As the number of Internet users proliferate, businesses
are increasingly turning to the Internet as an advertising medium.
Over 2,500 businesses currently advertise on the Internet in the
form of home pages on the World Wide Web (the "Web"). As is well
known by those in the art, the Web, which is organized by subject
matter, is an advanced system for navigating the Internet. Home
30 pages are the first screens of the different Web sites.

35 Computer users are therefore able to quickly and easily
review a multitude of products and services which are offered by
businesses advertising on the Internet. Unfortunately, a user is
currently unable to obtain additional information regarding
products or services in such a convenient and efficient manner. To

obtain additional information, the user must record the telephone number of a particular business and manually call the business.

As those in the direct response advertising business will readily attest, the success of direct response advertising depends greatly upon the ease in which a potential customer can contact those selling the products or services. The additional steps of manually recording the telephone number and dialing the telephone number may therefore deter potential customers from further inquiry and possibly result in lost sales.

In addition, most individual consumers have a single telephone line in their home which is shared between voice connections for telephone calls and data connections for connecting to the Internet, for example. The typical consumer is thus unable to access the Internet while concomitantly making a telephone call to the business. Advantageously, many businesses have separate telephone lines for data and voice communications. Business operators are thus able to conduct business simultaneously over both a telephone and a computer.

Further, lack of security, reliability and accountability restrict the ability of consumers to purchase goods over the Internet. Although some purchases can be made over the Internet using a credit card, the threat of someone fraudulently obtaining their credit card number through the computer network compels a majority of consumers to pay for the goods off-line, typically over the telephone using the previously described process.

Accordingly, there is a need in the art for a method and system for establishing voice communications between a computer operator and an agent of a business wherein the operator instructs a telephone switching system located at the business to call the operator over the telephone. When the operator answers the call, the telephone switching system automatically connects the agent to the operator.

Summary of the Invention

5 This need is met by the method and system of the present invention for establishing voice communications between an operator and an agent wherein the operator sends a call request over a computer network, such as the Internet, to a telephone switching network associated with the agent. The call request preferably
10 includes a name of the operator, a telephone number of a telephone associated with the operator and a time to call. The telephone switching network detects the information contained in the call request and dials the operator telephone at the designated time to call. When the operator answers the operator telephone, the
15 telephone switching system connects an agent telephone associated with the agent to the operator telephone.

 In accordance with one aspect of the present invention, a method for establishing voice communications between an operator which is associated with a computer and a telephone and an agent is
20 provided. The method comprises the steps of: entering a call request by the operator in the computer for the agent to call the operator; transmitting the call request from the computer over a computer network to a telephone switching system; and establishing voice communications between the agent and the operator through the
25 telephone switching system.

 In accordance with another aspect of the present invention, a communications system for establishing voice communications between an operator and an agent is provided. The operator being associated with an operator telephone and entering
30 a call request into a computer. The communications system comprises an agent telephone associated with the agent and telephone switching system for receiving the call request from the computer, for dialing the operator telephone and for interconnecting the agent telephone and the operator telephone.

35 Preferably, the telephone switching system comprises a

telephone computer for receiving the call request from the computer. An automatic call distributor for automatically dialing the operator telephone in response to the telephone computer and for interconnecting the agent telephone and the operator telephone.

5 The automatic call distributor preferably comprises answer means for detecting when the operator answers the operator telephone, and wherein the automatic call distributor connects the agent to the operator telephone when the operator answers the operator telephone. The call request may comprise a time to call the
10 operator and the telephone computer may comprise time means for detecting the time to call the operator from the call request; and dial means responsive to the time means for prompting the automatic call distributor to call the operator telephone at the time to call.

15 It is a feature of the present invention to provide a method for a computer operator to easily and conveniently have a business advertising on a computer network, such as the Internet, call the operator back over the telephone.

20 These and other features and advantages of the present invention will become apparent from the following detailed description, the accompanying drawings and the appended claims.

Brief Description of the Drawings

25 Fig. 1 is a block diagram of a system for establishing voice communications between an operator and an agent in accordance with the present invention;

Fig. 2 shows an exemplary home page used for advertising by, for example, a business on the Internet; and

30 Fig. 3 shows an exemplary return call screen used by the operator request a return call from the business.

Detailed Description of the Invention

5 A communications system 100 for establishing voice communications between an operator 102 and an agent 104 is shown in Fig. 1. The operator 102 uses an operator computer 106 to communicate with other computers through a computer network, such as, for example, the Internet 108, in a well known manner. 10 Although the invention will be described with reference to the Internet, it should be understood that the invention may be advantageously employed with any of a number of computer networks, such as conventional bulletin boards.

15 Modern businesses usually have an automated system, generally referenced by numeral 110, for handling inbound and outbound telephone calls. For example, a business may be connected to the Internet 108 via a telephone switching system 112. The telephone switching system 112 comprises a telephone computer 114 connected to an automatic call distributor (ACD) 116, preferably Rockwell 20 International's SPECTRUM Automatic Call Distribution System. The ACD 116, or alternatively a private branch exchange (PBX), operates in a well known manner to connect an agent telephone 118 associated with the agent 104 to external telephonic units, such as an operator telephone 120 associated with the operator 102. Although 25 only one agent 104 is shown, businesses typically have a plurality of agents for answering telephone calls. As will be readily apparent to those skilled in the art, the present invention may be advantageously employed with a business having more than one agent. The ACD 116 is connected to the operator telephone 120 through a 30 telephone network 122. A conventional answering machine 121 is connected to the operator telephone 120.

 Operation of the communications system 100 will now be discussed with reference to Figs. 2 and 3. The operator 102 uses the operator computer 106 to review a multitude of products and 35 services advertised on the Internet 108. Businesses on the

Internet 108 advertise on the World Wide Web using home pages. As is well known, home pages may include pictures of a product, descriptions of the product and a listing of a telephone number to call to ask questions or to order the product.

5 An exemplary home page 200 which may be used to advertise a product is shown in Fig. 2. As is well known, the home pages 200 on the World Wide Web use hypertext technology to enable computer operators 102 to move from one computer data base to another at the click of a mouse. The home page 200 includes a text portion 202
10 describing the product or service. When activated, "next" and "back" buttons 206, 208 transfer the operator 102 to the next home page or to the previous home page, respectively. Additionally, the above information may be entered as conventional text commands.

15 If the operator 102 wants to establish voice communications with the business to order a product or to ask a question, the operator 102 activates a "call me" button 210. In response, the operator 102 is transferred to a return call screen 300 shown in Fig. 3. The operator 102 then enters a name 302, a telephone number to call 304 and a time to call 306 in their respective
20 fields. Alternatively, the operator's name and telephone number may be kept on file and be automatically entered in the appropriate fields in a well known manner.

For ease of operation, a list of frequently requested times in which to call may be listed, such as immediately 306a, 5 minutes
25 306b or 30 minutes 306c. In this case, the operator 102 would simply click on the desired time. If needed, another time can be entered by the operator 102 in a designated area 308. After filling in the requested information, the operator 102 activates a
30 "next" button 310 to send a call request to the telephone switching system 112. "Back" and "exit" buttons 312, 314 are activated to exit the home page 300 without sending the call request.

Additional information may be included in the call request for processing by the telephone switching network 112. For example, the number of the home page 200 which prompted the call request may
35 be included in the call request. This information is used by the

telephone switching system 112 to route the call to an agent having the appropriate knowledge about the product or service which prompted the call. Additionally, the agent 104 can be viewing the home page 200 on a conventional computer display, or other displays, when conversing with the operator 102 over the agent telephone 118. Numerous displays are well known in the art and may be advantageously employed in the invention.

Preferably, a Web server of the business packetizes the name 302, telephone number 304 and the time to call 306 information into a single conventional electronic mail (E-mail) message (designated a "call request") which is sent over the Internet 108. Alternatively, program to program communications, such as Transmission Control Protocol/Internet Protocol (TCP/IP) sockets which are well known in those skilled in the art, may be used as a means to send the information from the operator computer 106 to the telephone switching system 112.

The telephone computer 114 of the telephone switching system 112 receives the call request, detects the time to call 306 and converts the call request into a predictive dial request command, which is formatted for proper receipt by the ACD 116. The telephone computer 114 may detect the time to call 306 in the call request and delay transmitting the call request to the ACD 116 until the time to call. The telephone computer 114 comprises timer means 124, which is software based, for detecting the time to call 306 in the call request. The ACD 116 would then attempt to dial the telephone number 304 substantially immediately upon receipt of the dial request command.

Alternatively, the telephone computer 114 may transmit the dial request command, which includes the time to call 306 information, substantially immediately upon receipt of the call request. The ACD 116 would then detect the time to call 306 and delay the outbound dialing of the telephone number 304 until that time. Either the ACD 116 or the telephone computer 114 may therefore control when the telephone number 304 is dialed based on the time to call 306.

Preferably, the ACD 116 uses predictive outbound dialing to call the operator telephone 120. Systems for providing predictive outbound dialing from the ACD 116 are well known in the art. One such system is described in commonly assigned U.S. Patent No. 4,881,261, the disclosure of which is hereby incorporated by reference.

The telephone computer 114 sends the dial request command to the ACD 116 for call processing. Dial means 126 in the ACD 116, which is preferably software based, then places an outbound telephone call to the operator telephone 120 in a well known manner. Answer means 128 in the ACD 116 detects when the operator 102 answers the call, as distinguished from an automated answering machine, a busy signal or no answer. One such means for detecting whether a human answers a telephone call is disclosed in commonly assigned U.S. Patent No. 4,809,272, the disclosure of which is hereby incorporated by reference.

When the operator 102 answers the telephone, the ACD 116 connects the operator telephone 120 to the agent 104 through the agent telephone 118. Various methods are well known in the art for selecting an agent to connect to the telephone call. Since the philosophy of such methods are not important to the present invention beyond connecting the telephone call to the agent 104, details will not be further given herein. Those desiring additional information regarding methods and systems for selecting agents are referred to U.S. Patent No. 5,206,903 which is incorporated herein by reference.

Alternatively, the telephone computer 114 may dial the operator telephone 120 directly and connect the agent telephone 118 to the operator telephone 120 when the operator 102 answers the call. As is well known in the art, commercial telephone cards are available for personal computers for dialing external telephones. After the operator 102 answers the call, the telephone computer 114 then dials a telephone number, or extension, to access the agent telephone 118 and thereafter connect the agent 104 to the operator 102.

In addition, the ACD 116 may transmit information to the agent 104 prior to, or simultaneous with, connecting the agent 104 to the operator 102. This information may comprise the operator's name or other information. The information may be displayed on the display of the agent 104 or provided to the agent 104 in any other appropriate manner. Those skilled in the art will likely be able to readily design numerous telephone switching systems using commercially available components for receiving the call request and automatically dialing the operator telephone 120. Any telephone switching system which can establish voice communications between the operator 102 and the agent 104 can be advantageously employed in the present invention.

A method for establishing voice communications between an operator 102 and an agent 104 is provided in the present invention. In particular, a method is provided for establishing voice communications between the operator 102, associated with a computer 106 and a telephone 120, and an agent 104. The method comprises the steps of entering a call request by the operator 102 in the computer 106 for the agent 104 to call the operator 102 and transmitting the call request from the computer 106 over a computer network, such as the Internet 108, to a telephone switching system 112. Voice communications are then established between the agent 104 and the operator 102 through the telephone switching system 112.

Preferably, the telephone 120 associated with the operator 102 is automatically dialed by the telephone switching system 112 based on the call request. In particular, the telephone computer 114 may receive the call request, automatically dial the telephone 120 based on the call request and automatically connect the agent 104 to the telephone 120 after dialing the telephone 120. The step of automatically connecting the agent 104 preferably comprises the steps of determining when the operator 102 answers the telephone 120 and automatically connecting the agent 104 to the telephone 120 when the operator 106 answers the telephone 120.

Further, the step of entering the call request may comprise

the step of entering a telephone number of the telephone 120 associated with the operator 102 and wherein the step of automatically dialing the telephone 120 comprises the step of dialing the telephone number. The step of entering the call request may comprise the step of entering a time to call the operator 106 and wherein the step of automatically dialing the telephone 120 comprises the step of automatically dialing the telephone 120 at the time to call. The step of entering the call request may comprise the step of entering a name of the operator 106 and wherein the method comprises the step of indicating to the agent 104 the name of the operator 106 before establishing voice communications between the agent 104 and the operator 106.

The step of automatically dialing the telephone may comprise the steps of sending a dial request command from a telephone computer 114 to an automatic call distributor 116 associated with the agent 104 and automatically dialing the telephone 120 by the automatic call distributor 116 in response to the dial request command. Further, the step of automatically connecting the agent 104 comprises the steps of: determining when the operator 106 answers the telephone 120 and automatically connecting the agent 104 to the telephone 120 when the operator 102 answers the telephone 120.

Having thus described the invention in detail by way of reference to preferred embodiments thereof, it will be apparent that other modifications and variations are possible without departing from the scope of the invention defined in the appended claims. For example, the telephone switching system 112 may have design configurations which depart from those described herein.

What is claimed is: